

UCLA

UCLA Previously Published Works

Title

Job Satisfaction Among Methadone Maintenance Treatment Clinic Service Providers in Jiangsu, China: A Cross-sectional Survey.

Permalink

<https://escholarship.org/uc/item/1tq40026>

Journal

Journal of addiction medicine, 14(1)

ISSN

1932-0620

Authors

Chen, Guohong
Lin, Chunging
Chen, Yuheng
et al.

Publication Date

2020

DOI

10.1097/adm.0000000000000530

Peer reviewed

Job Satisfaction Among Methadone Maintenance Treatment Clinic Service Providers in Jiangsu, China: A Cross-sectional Survey

Guohong Chen, MD, Chunqing Lin, PhD, Yuheng Chen, Li Li, PhD, Sitong Luo, PhD, Xiaoyan Liu, MS, Xiping Huan, MD, Xiaobin Cao, PhD, Jennifer M. McGoogan, PhD, and Zunyou Wu, PhD

Objective: Service providers' job satisfaction is critical to the stability of the work force and thereby the effectiveness of methadone maintenance treatment (MMT) programs. This study aimed to explore MMT clinic service providers' job satisfaction and associated factors in Jiangsu, China.

Methods: This secondary study used baseline data of a randomized interventional trial implemented in Jiangsu, China. A survey was conducted among 76 MMT service providers using the computer-assisted self-interview (CASI) method. Job satisfaction responses were assessed via a 30-item scale, with a higher score indicating a higher level of job satisfaction. Perceived institutional support and perceived stigma due to working with drug users were measured using a 9-item scale. Correlation and multiple linear regression analyses were performed to identify factors associated with job satisfaction.

Results: Correlation analyses found a significant association between job satisfaction and having professional experience in the prevention and control of HIV, other sexually transmitted infections, or other infectious diseases ($P = 0.046$). Multiple regression analyses revealed that working at MMT clinics affiliated with Center for Disease Control and Prevention sites was associated with a lower level of job satisfaction ($P = 0.014$), and perception of greater

institutional support ($P = 0.001$) was associated with a higher level of job satisfaction.

Conclusion: Job satisfaction among MMT clinic service providers was moderate in our study. Our findings suggest that institutional support for providers should be improved, and that acquisition of additional expertise should be encouraged.

Key Words: correlation analyses, institutional support, job satisfaction, methadone maintenance treatment, service provider

(*J Addict Med* 2020;14: 12–17)

Job satisfaction has been defined as an employee's internalized appraisal of his or her job, job experiences, and job situation (Locke, 1976). In healthcare settings, service providers' job satisfaction is an important determinant of performance and is vital to workforce stability and treatment program viability (Campbell and Ebuehi, 2011; Blaauw et al., 2013; Roche et al., 2013). Low job satisfaction among health service providers may result in growing intention to quit, thereby driving high turnover (Han and Jekel, 2011). In addition, lack of job satisfaction may jeopardize the quality of services provided to patients, which can negatively impact outcomes (Chen et al., 2011; Lin and Detels, 2011; Szecsenyi et al., 2011; Oetzel et al., 2015).

Previous studies have identified various factors related to service providers' level of satisfaction in healthcare settings. At the individual level, higher education has been associated with higher job satisfaction (Chirwa et al., 2009). Furthermore, associations between job satisfaction and job-related factors, such as working environment, supportive leadership, salary level, opportunities for promotion, contingent rewards, and fringe benefits, have been observed (Top and Gider, 2013; Schwendimann et al., 2016; Al-Hamdan et al., 2017). Finally, while studies have considered the impact of perceived HIV stigma of service providers on their job satisfaction (Chirwa et al., 2009), little has been done to address the impact of perceived drug use-related stigma on job satisfaction of providers. A study carried out amongst drug and alcohol nurses in Sydney, Australia aimed to assess the impact of implicit bias against drug users on their job satisfaction. It was found that challenging behaviors of drug users resulted in stress and desire to change jobs (von Hippel et al., 2008). As such, further research is needed to identify drivers

From the Jiangsu Provincial Center for Disease Control and Prevention, Nanjing, China (GC, YC, XL, XH); Semel Institute for Neuroscience and Human Behavior, University of California at Los Angeles, Los Angeles, CA (CL, LL, SL); National Center for AIDS/STD Control and Prevention, Chinese Center for Disease Control and Prevention, Beijing, China (XC, JMM, ZW); Department of Epidemiology, Fielding School of Public Health, University of California at Los Angeles, Los Angeles, CA (ZW). Received for publication April 25, 2018; **Revised** November 11, 2018 accepted December 5, 2018.

The authors declare no conflicts of interest.

Send correspondence to Zunyou Wu, PhD National Center for AIDS/STD Control and Prevention, Chinese Center for Disease Control and Prevention, 155 Changbai Road, Beijing 102206, China. E-mail: wuzy@263.net, wuzunyou@chinaaids.cn

Copyright © 2019 The Author(s). Published by Wolters Kluwer Health, Inc. on behalf of the American Society of Addiction Medicine. This is an open access article distributed under the terms of the Creative Commons Attribution-Non Commercial-No Derivatives License 4.0 (CCBY-NC-ND), where it is permissible to download and share the work provided it is properly cited. The work cannot be changed in any way or used commercially without permission from the journal.

ISSN: 1932-0620/19/1401-0012

DOI: 10.1097/ADM.0000000000000530

of job satisfaction amongst healthcare professionals who deal with these vulnerable populations.

In the 2 decades since methadone maintenance treatment (MMT) was first introduced in China (Sullivan et al., 2015), strong evidence has accumulated supporting its effectiveness using a range of measures including heroin use, drug injecting behaviors, drug-related criminal behaviors, HIV infections, and social functioning (Pang et al., 2007; Sullivan and Wu, 2007; Yin et al., 2010; Zhuang et al., 2012; Zhou et al., 2013; Sun et al., 2015; Tsui et al., 2014). As of the end of 2015, 785 MMT clinics across China had served 167,564 clients (NCAIDS et al., 2016). There are, on average, more than 200 patients treated by 8 to 10 staff members at each clinic (NCAIDS et al., 2016). Doctors see clients, often conducting a physical examination and providing psychological counseling, and prescribe methadone, as needed. All doctors are certified physicians authorized to prescribe analgesic and psychotropic drugs. Clients deliver their prescriptions to clinic pharmacists, and nurses are responsible for dispensing methadone to clients and observing them take their methadone doses. Other clinic staff members are responsible for data entry, management, reports, and other duties (Lin and Detels, 2011). In addition, clinic services may include referrals to testing for sexually transmitted infections (STIs), social support counseling, or skills training for employment (Sullivan and Wu, 2007). However, these supportive services have been provided only sparingly, and the frequency, format, and quality of the services are not consistent across clinics (Pang et al., 2007).

While Cao et al. have suggested that interventions that would increase retention of clients in MMT are needed (Cao et al., 2013), job satisfaction of MMT service providers and its impact on retention have often been overlooked. In a qualitative study, Lin et al. reported that MMT service providers in China's clinics experienced a variety of challenges, including worry over personal safety, low salary, large workload, and negative attitudes in China toward MMT (Lin et al., 2010). Lin et al. noted that these factors may impact job satisfaction and contribute to higher levels of stress and increased likelihood of burnout (Lin et al., 2010). In a different study, Li et al. underscored the critical nature of provider-client interactions (eg, quality of communication, duration of visit) in delivery of high-quality care and found that higher job satisfaction among MMT providers was associated with better provider-client interaction (Li et al., 2017).

In summary, because opioid use disorder cannot be cured by pharmaceuticals alone, clients require a comprehensive package of care services, with methadone being only 1 component. Delivery of these kinds of services requires specialized training and a high level of engagement by providers in their work. When this fails, people who use drugs and their services will be impacted, undermining the core goals of MMT (Sullivan, 2013). Nonetheless, the data on MMT service provider job satisfaction remain deficient in China. Thus, we aimed to examine job satisfaction among service providers in China's MMT clinics, and to explore factors associated with job satisfaction to better inform programmatic effectiveness of MMT clinics throughout China.

MATERIALS AND METHODS

Study Design and Setting

This study employed a cross-sectional design and was conducted from January to August, 2013, in Jiangsu Province, China. Jiangsu is a province on China's east-central coast home to more than 79 million people in 2016 (National Bureau of Statistics of the People's Republic of China, 2017). As of the beginning of January 2013, Jiangsu had a total of 18 MMT clinics, all in urban areas, serving 3060 clients. For the present study, 10 of Jiangsu's 18 MMT clinics were selected at random among those clinics with more than 80 clients as study sites. This was a secondary study, using baseline data from a randomized controlled trial (RCT) implemented in 5 provinces (Guangdong, Hunan, Jiangsu, Shaanxi, and Sichuan) (Li et al., 2017). The parent study (Li et al., 2017) aimed to examine factors associated with provider-client interaction to address challenges faced in MMT in China and to maximize treatment effects. In all, 418 service providers in 68 MMT clinics from the 5 provinces (Guangdong, Hunan, Jiangsu, Shaanxi, and Sichuan) were randomly assigned to either intervention or control group. The intervention group received behavioral interventions periodically by trained trainers. The study was assessed at baseline and followed up every 6 months.

Recruitment and Enrollment

A total of 10 MMT clinics were selected for inclusion in this secondary study. All were in urban areas, most in the southern part of Jiangsu. Mean number of clients per clinic was 114. Total number of staff at each clinic ranged from 7 to 15. While all clinics provided methadone to clients, only 1 also provided psychological counseling, and only 1 provided job skills training. A study team visited the 10 selected clinics, shared information on the study, and invited all service providers who had direct contact with clients to participate.

All those interested were screened for study eligibility. Inclusion criteria were: being at least 18 years old; being a medical staff member (ie, doctor, nurse, and pharmacist); and being directly employed by the MMT clinic at the time of the study. Clinic support and administrative staff (eg, accountants, cleaners, security guards, and receptionists) were not included in the study.

Because this study used baseline data collected during another study (Li et al., 2017), sample size was determined based on calculations made during the design of that study. No additional participants were recruited for the purposes of this study. Study recruitment began on January 10, 2013, and ended on March 21, 2013. A total of 107 service providers at the 10 selected MMT clinics were screened for study eligibility. Among them, 31 (29.0%) were excluded because they were nonmedical staff members (eg, accountants, receptionists, security guards). The final study population was 76 MMT clinic service providers (of 107, 71.0%), all of who worked at their clinics full-time.

Researchers, following standardized scripts, informed all service providers who met eligibility criteria of the aims of the study, procedure that would be followed, the fact that their participation was voluntary, and that their data and survey responses would be kept confidential. Those choosing to sign informed consent forms were then enrolled. All 76 study

participants (100% response rate) successfully completed the questionnaire and were included in the final analysis.

Questionnaire

The questionnaire consisted of 4 parts: demographic and work history information; job satisfaction survey; perceived institutional support survey; and perceived stigma due to working with drug users' survey. The questionnaire (including all 4 parts) was delivered to participants via computer-assisted self-interview (CASI) method in Mandarin Chinese (translations and validations conducted as a part of a separate study [Li et al., 2017]), whereby participants were required to step through a series of questions, reading and responding to each one using a laptop. Participants completed the assessment over the course of approximately 45 minutes, individually, in a private office inside the MMT clinic. A trained interviewer was available to answer questions related to computer use and assessment questions, as needed, but was not present for the purposes of guiding the participant through the survey. All data were automatically collected in real time.

Part 1: Demographic and Work History Information

Participant demographic characteristics (ie, age, sex, medical education) and work history characteristics (ie, MMT training, previous and current occupation, duration of work at the MMT clinic, and MMT clinic association) were collected. No personal identifier information was collected.

Part 2: Job Satisfaction

Job satisfaction was assessed via a 30-item scale (Bellingham, 2011). Sample items included "You look forward to going to work on Monday morning," "You feel free to do things the way you like at work," and "You feel involved in decisions that affect your organizational community." Although the original version of this scale allowed simply yes/no responses, for the purposes of this study, a 5-point Likert scale was provided for participants to rate their degree of agreement with each statement (ie, "Strongly Agree," "Agree," "Not Sure," "Disagree," "Strongly Disagree"). Responses to all items were summed to create a total score of the scale, with a higher score indicating a higher level of job satisfaction. The possible score range was 30 to 150.

Part 3: Perceived Institutional Support

Perceived institutional support was assessed by a 9-item scale originally developed by Li et al., 2007, and previously used among Chinese MMT service providers (Li et al., 2017). The Cronbach alpha value for the scale was previously determined to be 0.76 (Li et al., 2017). Sample items included "You are concerned about your personal security during work" and "Your colleagues in this clinic get paid less than the colleagues working in other departments." Again, the same 5-point Likert scale response categories were provided for participants to rate their degree of agreement with each statement. As before, responses to all items were summed for a total score, higher scores indicating higher levels of perceived institutional support. Possible range was 9 to 45.

Part 4: Perceived Stigma due to Working with Drug Users

Perceived stigma due to working with drug users was assessed using a 9-item scale originally developed by Bennett et al., 1994, and used previously among Chinese MMT service providers (Li et al., 2007). Again, the 5-point Likert scale response categories were provided. The direction of some items was reversed so that a higher score always indicated a more negative impact. Example items included "You suffer discrimination or stigma outside of work due to the fact that you work in a drug-related field," "People move away from you at social functions when they hear that you work in the drug field," and "You feel your work is looked down upon by others since you are working with drug users." Consistent with the other survey parts, responses to all items were summed, higher scores indicated higher levels of perceived stigma, and the possible range was 9 to 45.

Statistical Analysis

Participant characteristics were described as number and percent for categorical variables and mean and standard deviation (SD) for continuous variables. The scores for participants on each of the 3 scales (job satisfaction, perceived institutional support, and perceived stigma due to working with drug users) were presented as mean and SD. To examine univariate relationships between job satisfaction and participant characteristics, and also perceived institutional support and perceived stigma, Pearson correlation coefficients (r) were calculated. Multiple linear regressions were performed to assess determinants of job satisfaction while controlling for the simultaneous effects of participant characteristics, and also perceived institutional support and perceived stigma to produce standardized regression coefficients (β). All P values presented were 2-sided, and $P < 0.05$ was considered statistically significant. Statistical analyses were performed using the SAS software (version 9.4, SAS Institute Inc.).

Ethical Considerations

This study was reviewed and approved by the Institutional Review Board of the University of California, Los Angeles (UCLA; # 11-002544) and of the National Center for AIDS/STD Control and Prevention (NCAIDS), Chinese Center for Disease Control and Prevention (China CDC; # X120331210). Written informed consent was obtained prior to the commencement of study activities. All participant data and survey responses were kept confidential. Each individual who completed the study received compensation of CNY 30 (USD 4.80) for his or her time and participation.

RESULTS

Participants

Characteristics of study participants are presented in Table 1. Mean age was 39 years (SD ± 11.4). Previous experience among study participants included work in HIV or other infectious diseases (25.0%), mental health, or drug detoxification (25.0%). Slightly less than half of participants indicated that they had received national-level MMT program training (48.7%). Approximately half of participants worked

TABLE 1. Characteristics of Participants (n = 76)

Characteristic	Participants, n (%)
Overall	76 (100)
Age, yrs	
Mean (SD)	39 (± 11.4)
18–30	21 (27.6)
31–40	19 (25.0)
41–50	25 (32.9)
≥ 51	11 (14.5)
Sex	
Male	25 (32.9)
Female	51 (67.1)
Highest medical training achieved	
Associate degree	29 (38.2)
Undergraduate or higher degree	27 (35.5)
Other*	20 (26.3)
Prior experience	
HIV/other infectious diseases	19 (25.0)
Mental health or detoxification	19 (25.0)
STIs	5 (6.6)
Other†	33 (43.4)
Received national-level training	
Yes	37 (48.7)
No	39 (51.3)
MMT clinic affiliation	
CDC	35 (46.1)
Hospital or clinic	41 (53.9)
Current occupation	
Doctor	24 (31.6)
Nurse	23 (30.3)
Pharmacist	12 (15.8)
Other‡	17 (22.3)
Employment duration, yrs	
Mean (SD)	4 (± 2.1)
0–1	17 (22.4)
2–4	33 (43.4)
≥ 5	26 (34.2)

CDC, Centers for Disease Control and Prevention; MMT, methadone maintenance treatment; SD, standard deviation; STI, sexually transmitted infection.

*Other includes achieved short-term training/less than 1 year medical training; vocational high school.

†Other includes surgery; internal medicine; pediatrics; and laboratory.

‡Other includes clinic managers and counsellors.

at hospital or clinic-associated MMT clinics (53.9%) and half at CDC-affiliated MMT clinics (46.1%). Mean duration of employment at their current MMT clinic was 4 years (SD ± 2.1).

Job Satisfaction, Perceived Institutional Support, and Perceived Stigma

In our study, the Cronbach alpha for the job satisfaction scale was 0.93, for the perceived institutional support scale was 0.57, and for the perceived stigma scale was 0.93. Tabulated results of responses to these surveys are reported in Table 2. Mean job satisfaction score was 110.4 (SD ± 12.3). Mean score for perception of institutional support was 27.2 (SD ± 5.2), and mean score for perception of stigma due to work with drug users was 19.1 (SD ± 6.0).

Correlates of Job Satisfaction

Results of univariate analysis in the form of Pearson's correlation coefficients (r) and P values are presented in Table 3. Perceived stigma due to work with drug users was

TABLE 2. Mean Participant Scores on 3 Scales—Job Satisfaction, Perceived Level of Institutional Support, and Perceived Stigma Due to Working With Drug Users (n = 76)

Scale	Score Mean (SD)
Job satisfaction (minimum: 30/maximum: 150)	110.4 (± 12.3)
Perceived level of institutional support (minimum: 9/maximum: 45)	27.2 (± 5.2)
Perceived stigma due to work with drug users (minimum: 9/maximum: 45)	19.1 (± 6.0)

observed to have the strongest negative correlation with job satisfaction ($r = -0.62$, $P < 0.001$), while perceived institutional support ($r = 0.57$, $P < 0.001$) and prior work experience in HIV/STIs/infectious diseases ($r = 0.23$, $P = 0.046$) had the strongest, positive correlation with job satisfaction. No other statistically significant correlation with job satisfaction was detected.

Results of the multiple linear regression analyses to determine the degree to which each of the different covariates impacted job satisfaction are presented in Table 4 as β and P values. After controlling for confounding, perceived stigma due to work with drug users ($\beta = -0.54$, $P < 0.001$) and employment at a CDC-affiliated MMT clinic ($\beta = -0.23$, $P = 0.014$) negatively impacted job satisfaction while perceived institutional support ($\beta = 0.31$, $P = 0.001$) and prior work in HIV/STIs/infectious diseases ($\beta = 0.29$, $P = 0.003$) made significant individual contributions to job satisfaction.

DISCUSSION

We found a moderate level of job satisfaction and identified several factors associated with the level of job satisfaction among MMT service providers in Jiangsu, China. Contributors to low job satisfaction included MMT clinic affiliation with a CDC, high perceived stigma due to work with drug users, low perceived institutional support, and prior work experience outside of HIV, STIs, or other infectious disease areas. These findings are consistent with that of similar studies in other countries. For example, a study among nurses in England found that little opportunity for promotion and training strongly impacted job satisfaction (Shields and

TABLE 3. Pearson Correlation Coefficients (r) Describing the Correlation Between the Different Covariates and Job Satisfaction (n = 76)

Covariate	Pearson Correlation Coefficient	P
One-yr increase in age	-0.07	0.54
Female	0.06	0.59
Higher medical training achieved	-0.003	0.98
Having prior background in HIV/STIs/infectious diseases	0.23	0.046
Received national-level training	-0.09	0.12
Affiliated with CDC	-0.12	0.31
Current occupation doctor	-0.07	0.53
Longer duration of employment	-0.19	0.09
Perceived institutional support	0.57	<0.001
Perceived stigma due to work with drug users	-0.62	<0.001

TABLE 4. Standardized Regression Coefficients (β) Calculated by Multiple Linear Regression to Describe the Relative Contribution of Different Covariates to Job Satisfaction (n = 76)

Covariate	Standardized Regression Coefficient	P
One-yr increase in age	0.06	0.57
Female	-0.02	0.80
Higher medical training achieved	0.03	0.75
Having prior background in HIV/STIs/infectious diseases	0.29	0.003
Received national-level training	-0.14	0.10
Affiliated with CDC	-0.23	0.014
Current occupation doctor	0.09	0.40
Longer duration of employment	0.017	0.86
Perceived institutional support	0.31	0.001
Perceived stigma due to work with drug users	-0.54	<0.001

Ward, 2001). As another example, a recent study among nurses in Africa found that perceived HIV stigma was a strong predictor of poor job satisfaction (Chirwa et al., 2009).

We found that service providers who worked at CDC-affiliated MMT clinics had lower level of satisfaction in comparison with those who worked at hospital-affiliated MMT clinics. This may be related to the nature of employment in CDC-affiliated MMT clinics in China. According to the National MMT Program's guidelines, doctors employed at MMT clinics are required to be certified to prescribe analgesic and psychotropic drugs (Ministry of Health of China MOH, 2006 (MOH) et al., 2006). However, CDC staff are mostly public health professionals who do not usually have this certification. Therefore, to address this gap, CDCs often hire doctors to staff its clinics on a contract basis. Typically, contracted doctors are considerably more dissatisfied with their salaries, health insurance, pension, and tuition benefits as compared with doctors employed directly (Shang et al., 2014). This issue, which does not occur at hospital-based MMT clinics, has been shown to negatively impact job satisfaction and morale (Zhou and Wang, 2010). Similarly, among nurses, there is generally no difference in responsibilities between contract-based and directly employed nurses, yet differences in remuneration exist. Furthermore, lower job satisfaction is likely also driven by contract workers feeling a sense of insecurity or worry about the instability of their jobs (Lin et al., 2010).

The lower job satisfaction found among service providers at CDC-affiliated clinics may also be related to work-life balance. Since MMT clinics must be open and serve clients every day of the year, service providers in CDC-affiliated MMT clinics do not get as much weekend, holiday, and vacation time off from work as their colleagues in other CDC departments. By contrast, hospital-based MMT service providers do not work night or swing shifts, while their colleagues in other hospital departments do.

The MMT service providers have lower job satisfaction due to the fact that they are working with a substance using population. As many in China believe MMT clinics to be dangerous places where heroin users congregate, MMT

service providers may also perceive that their personal security is threatened at work. In addition, they may believe that they are at risk of occupational exposure to infectious diseases including hepatitis C virus, HIV, or even tuberculosis. This can have negative impacts on the success of MMT programming throughout China. Other studies have found that low job satisfaction can lead to poorer provider-client interaction (Kelly et al., 2010). More so, research has shown that providers working in MMT clinics with a higher level of negative attitude towards drug users were less likely to interact with clients, leading to a cycle of mistrust and misuse of medical care among drug users (Li et al., 2012). Thus, improved job satisfaction is a necessary step towards promoting a healthy environment and improving MMT retention and success.

In this study, greater perceived institutional support was correlated with greater job satisfaction among MMT service providers. In China, MMT clinics are always affiliated with a larger institution such as a CDC or a hospital, so the attitudes of institutional supervisors have a direct effect and critical impact on MMT clinic staff. Our finding is consistent with other studies in which a perception of more institutional support by service providers was associated with less discrimination exhibited by service providers toward clients, which could subsequently affect the treatment outcomes (Li et al., 2007; Li et al., 2008). Moreover, some MMT service providers may believe that they lose expertise while working at an MMT clinic and their work is not highly regarded in the medical field (Lin et al., 2010).

In summary, our findings suggest several avenues for improvement of job satisfaction among MMT service providers, including equalization of responsibilities, work load, and compensation packages; expansion of training to include universal precautions and to combat stigma and discrimination; creation of, and communication on, pathways to promotion; and encouragement of outward recognition and support by institutions for their MMT clinic service providers to validate the important work they do every day. Unfortunately, these comprehensive services may not always be possible in MMT programs and institutions may be restricted in what they can offer. As such, further communication and support are needed to help improve job satisfaction among MMT service providers.

Our study had some limitations. First, the cross-sectional design does not allow any examination of causality. Second, the study relied entirely on self-reported data, which may have been subject to social desirability and recall bias. However, we attempted to mitigate some of this effect by using the CASI method, not collecting identifier information, and ensuring participants that their responses would be kept confidential. Next, the Cronbach alpha for scale of perceived institutional support was relatively low. Though 0.6 is deemed believable, conducting factor analysis or excluding some items from the final scale may be useful for future research, our sample size was small. Thus, it was unlikely powerful enough to detect some correlations and it may have been the case that the small sample size introduced some bias due to sampling.

In conclusion, this study provides evidence of a moderate level of job satisfaction among MMT service providers in Jiangsu, China, and identifies essential factors that should be

addressed by stakeholders and policymakers to improve the job satisfaction of MMT service providers. Our findings suggest that institutional support for providers should be improved, and that providers should be encouraged and supported in their efforts to acquire additional expertise via continuous in-service training. MMT remains a critical part of China's responses to its opioid use and HIV epidemics. However, failure to address issues such as those highlighted here will continue to limit the effectiveness of China's National MMT Program.

ACKNOWLEDGMENTS

Authors thank local investigators and study participants, as well as all MMT service providers and clinic support staff across China for their hard work, diligence, and invaluable contribution to not only the MMT clinics and their clients, but to China and its people. Authors thank Sarah Robbins Scott for her English editing assistance in manuscript revision.

REFERENCES

- Al-Hamdan Z, Manojlovich M, Tanima B. Jordanian nursing work environments, intent to stay, and job satisfaction. *J Nurs Scholarsh* 2017;49:103–110.
- Bellingham R. *Job satisfaction survey* 2011. Available at: https://mn.gov/mmb/assets/Job-Satisfaction-Survey_tcm1059-128083.pdf. Accessed November 11, 2018.
- Bennett L, Kelaher M, Ross MW. The impact of working with HIV/AIDS on health care professionals: development of the AIDS impact scale. *Psychol Health* 1994;9:221–232.
- Blaauw D, Ditlopo P, Maseko F, et al. Comparing the job satisfaction and intention to leave of different categories of health workers in Tanzania, Malawi, and South Africa. *Glob Health Action* 2013;6:19287.
- Campbell PC, Ebuehi OM. Job satisfaction: rural versus urban primary health care workers' perception in Ogun State of Nigeria. *West Afr J Med* 2011;30:408–412.
- Cao X, Wu Z, Li L, et al. Mortality among methadone maintenance clients in China: a six-year cohort study. *PLoS One* 2013;8:e82476.
- Chen G, Ployhart RE, Thomas HC, et al. The power of momentum: a new model of dynamic relationships between job satisfaction change and turnover intentions. *Acad Manag J* 2011;54:159–181.
- Chirwa ML, Greeff M, Kohi TW, et al. HIV stigma and nurse job satisfaction in five African countries. *J Assoc Nurses AIDS Care* 2009;20:14–21.
- Han GH, Jekel M. The mediating role of job satisfaction between leader-member exchange and turnover intentions. *J Nurs Manag* 2011;19:41–49.
- Kelly SM, O'Grady KE, Brown BS, et al. The role of patient satisfaction in methadone treatment. *Am J Drug Alcohol Abuse* 2010;36:150–154.
- Li L, Comulada WS, Lin C, et al. Report on provider-client interaction from 68 methadone maintenance clinics in China. *Health Commun* 2017;32:1368–1375.
- Li L, Wu Z, Wu S, et al. HIV-related stigma in health care settings: a survey of service providers in China. *AIDS Patient Care STDS* 2007;21:753–762.
- Li L, Liang LJ, Wu Z, et al. Institutional support for HIV/AIDS care in China: a multilevel analysis. *AIDS Care* 2008;20:1190–1196.
- Li L, Wu Z, Cao X, et al. Provider-client interaction in methadone treatment clinics in China. *J Drug Issues* 2012;42:147–155.
- Lin C, Detels R. A qualitative study exploring the reason for low dosage of methadone prescribed in the MMT clinics in China. *Drug Alcohol Depend* 2011;117:45–49.
- Lin C, Wu Z, Rou K, et al. Challenges in providing services in methadone maintenance therapy clinics in China: service providers' perceptions. *Int J Drug Policy* 2010;21:173–178.
- Locke EA. The nature and causes of job satisfaction. In: Dunnette MD, editor. *Handbook of Industrial and Organizational Psychology*. Chicago, IL: Rand McNally; 1976:1297–1343.
- Ministry of Health of China (MOH), Ministry of Public Security of China & State Food and Drug Administration (SFDA) (2006) Work plan of community maintenance treatment for opioid addicts; 2006. Available at: http://www.sda.gov.cn/WS01/CL0288/10763_2.html. Accessed November 6, 2018.
- National Bureau of Statistics of China. National Data, Indicators, Population, Annual by Province. 2017. Available at: <http://data.stats.gov.cn/english/easyquery.htm?cn=E0103>. Accessed April 16, 2019.
- NCAIDS, NCSTD, and China CDC. Update on the AIDS/STD epidemic in China and main response in control and prevention in December, 2015. *Chin J AIDS STD* 2016; 22:69.
- Oetzel J, Wilcox B, Avila M, et al. Patient-provider interaction, patient satisfaction, and health outcomes: testing explanatory models for people living with HIV/AIDS. *AIDS Care* 2015;27:972–978.
- Pang L, Hao Y, Mi G, et al. Effectiveness of first eight methadone maintenance treatment clinics in China. *AIDS* 2007;21(Suppl 8):S103–S107.
- Roche AM, Duraisingam V, Trifonoff A, et al. The health and well-being of Indigenous drug and alcohol workers: results from a national Australian survey. *J Subst Abuse Treat* 2013;44:17–26.
- Schwendimann R, Dhaini S, Ausserhofer D, et al. Factors associated with high job satisfaction among care workers in Swiss nursing homes: a cross sectional survey study. *BMC Nurs* 2016;15:37.
- Shang J, You L, Ma C, et al. Nurse employment contracts in Chinese hospitals: impact of inequitable benefit structures on nurse and patient satisfaction. *Hum Resour Health* 2014;12:1.
- Shields MA, Ward M. Improving nurse retention in the National Health Service in England: the impact of job satisfaction on intentions to quit. *J Health Econ* 2001;20:677–701.
- Sullivan S. Opioid substitution: improving cost-efficiency. *Bull World Health Organ* 2013;91:83.
- Sullivan SG, Wu Z. Rapid scale up of harm reduction in China. *Int J Drug Policy* 2007;18:118–128.
- Sullivan SG, Wu Z, Rou K, et al. Who uses methadone services in China? Monitoring the world's largest methadone programme. *Addiction* 2015; 110(Suppl 1):29–39.
- Sun HM, Li XY, Chow EP, et al. Methadone maintenance treatment program reduced criminal activity and improves social well-being of drug users in China: a systematic review and meta-analysis. *BMJ Open* 2015;5:e005997.
- Szecsényi J, Goetz K, Campbell S, et al. Is the job satisfaction of primary care team members associated with patient satisfaction? *BMJ Qual Saf* 2011;20:508–514.
- Top M, Gider O. Interaction of organizational commitment and job satisfaction of nurses and medical secretaries in Turkey. *Int J Hum Resource Manag* 2013;24:667–683.
- Tsui JJ, Evans JL, Lum PJ, et al. Association of opioid agonist therapy with lower incidence of hepatitis C virus infection in young adult injection drug users. *JAMA Int Med* 2014;174:1974–1981.
- von Hippel W, Brenner L, von Hippel C. Implicit prejudice toward injecting drug users predicts intentions to change jobs among drug and alcohol nurses. *Psychol Sci* 2008;19:7–11.
- Yin W, Hao Y, Sun X, et al. Scaling up the national methadone maintenance treatment program in China: achievements and challenges. *Int J Epidemiol* 2010;39:ii29–ii37.
- Zhou G, Wang X. Comparative study on psychological contract and job satisfaction between employed nurses and registered nurses. *Chin Nurs Res* 2010;24:1805–1807.
- Zhou Y, Li X, Zhang C, et al. Rates of HIV, syphilis, and HCV infection among different demographic groups of female sex workers in Guangxi China: evidence from 2010 national sentinel surveillance data. *AIDS Care* 2013;25:1433–1441.
- Zhuang X, Liang Y, Chow EP, et al. HIV and HCV prevalence among entrants to methadone maintenance treatment clinics in China: a systematic review and meta-analysis. *BMC Infect Dis* 2012; 12:130.